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HARMON INTERNATION INDUSTRIES, INCORPORATED
C/O ROBERT HALL
8500 BALBOA BOULEVARD
NORTHRIDGE, CA 91329

EXAMINER	
MONIKANG, GEORGE C	
ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/684,152	DEVANTIER ET AL.	
	Examiner	Art Unit	
	GEORGE C. MONIKANG	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-57* is/are pending in the application.

4a) Of the above claim(s) *5,9-11,20,24-26,29-32 and 40-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,12-19,21-23,27-28,33-39 and 43-57* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1. Claims 1-3, 6-8, 12-19, 21-23, 27-28, 33-36, 39, 43-46, 49, 52 & 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinowitz et al, US Patent Pub. 20030179891 A1, in view of Tagami et al, US Patent 5745586.

Re Claim 1, Rabinowitz et al discloses an audio system comprising at least one correction factor, the correction factor selected based on a method comprising: generating acoustic signals from at least one loudspeaker placed at potential loudspeaker locations (*figs. 1, 5: 14 & 16; fig. 3: 20; paras 0010, 0021, 0027: microphone and speakers in various locations generate and pick up sounds from said various locations*); recording transfer functions for the generated acoustic signals at a plurality of listening positions (*figs. 1, 5: 14 & 16; fig. 3: 20; paras 0010, 0021, 0027: microphone and speakers in various locations generate and pick up sounds from said various locations*); determining a plurality of potential correction factors (*para 0031*); modifying the transfer functions based on the potential correction factors so that predicted transfer functions are generated for each of at least two of the plurality of listening positions for each of the plurality of potential correction factors, the predicted transfer functions representing simulations for the potential correction factors (*fig. 4: 48*

& 52; paras 0030-0031: transfer function is calculated for at least two positions and checked for validity so that if the transfer function is not valid, adjustments are made and the function is calculated again until valid); and selecting a correction factor to improve for the criterion at the at least two of the plurality of listening positions based on a statistical analysis (*fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot/loudspeaker ; (where statistically will be broadly interpreted as collection of data)*); but fails to disclose **accessing a criterion** by which to statistically analyze the predicted transfer functions; statistically analyzing using the criterion across at least one frequency of the predicted transfer functions for the at least two of the plurality of listening positions. However, Tagami et al discloses a system that uses the concept of **accessing a criterion** (*Tagami et al, col. 8, lines 17-53: respective sound quality*) by which to statistically analyze a predicted signal across at least on frequency (*Tagami et al, figs. 3-4; col. 7, lines 50-67; col. 8, lines 17-53: the equalized audio function is analyzed by utilizing various criterion as disclosed in figs. 3-4*). It would have been obvious to modify the statistical analysis of Rabinowitz et al with the concept of accessing a criterion by which to statistically analyze a predicted signal across at least on frequency as taught in Tagami et al (*Tagami et al, figs. 3-4; col. 7, lines 50-67; col. 8, lines 17-53: the equalized audio function is analyzed by utilizing various criterion as disclosed in figs. 3-4*) for the purpose of enabling a listener to adjust an equalizer to obtain desired sound quality.

Re Claim 2, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 1, where the potential correction factor is a non-temporal correction factor (*Rabinowitz et al, para 0031*).

Re Claim 3, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 2, where the non-temporal correction factor is selected from the group consisting of gain, amplitude, and equalization (*Rabinowitz et al, paras 0030-0031*).

Re Claim 5, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 1, where the potential correction factor is a temporal correction factor (*Rabinowitz et al, paras 0030-0031: such as time stability which can be broadly interpreted as time delay compensation*).

Re Claim 6, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 1, where the statistical analysis indicates efficiency of the predicted transfer functions for the plurality of listening positions (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)*).

Re Claim 7, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 6, where efficiency is examined for predetermined frequencies (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization*

pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)).

Re Claim 8, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 7, where selecting a correction factor based on the statistical analysis comprises selecting a value for the correction factor to increase efficiency of the audio system in the predetermined frequencies (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data))*, where the potential correction factor comprises volume corrections (*Rabinowitz et al, fig. 4: 48 & 52; paras 0030-0031: transfer function is calculated and checked for validity so that if the transfer function is not valid, adjustments are made to the volume and the function is calculated again until valid*); and where selecting a value to increase efficiency comprises selecting a value that decreases volume of at least one of the loudspeakers in the audio system (*Rabinowitz et al, fig. 4: 48 & 52; paras 0030-0031: transfer function is calculated and checked for validity so that if the transfer function is not valid, adjustments are made to the volume and the function is calculated again until valid*).

Claim 12 has been analyzed and rejected according to claim 1.

Re Claim 13, the combined teachings of Rabinowitz et al and Tagami et al disclose the computer readable medium of claim 12, where the statistical analysis indicates efficiency of the predicted transfer functions for the plurality of listening

positions (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)*).

Re Claim 14, the combined teachings of Rabinowitz et al and Tagami et al disclose the computer readable medium of claim 12, where the statistical analysis indicates consistency of the predicted transfer functions across the plurality of listening positions (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)*).

Re Claim 15, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 12, where the statistical analysis indicates flatness for the predicted transfer functions (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)*).

Re Claim 16, the combined teachings of Rabinowitz et al and Tagami et al disclose the computer readable medium of claim 12, further comprising logic for recommending a specific correction factor (*Rabinowitz et al, fig. 4: 56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used*

to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)).

Claim 17 has been analyzed and rejected according to claim 1.

Claim 18 has been analyzed and rejected according to claim 2.

Claim 19 has been analyzed and rejected according to claim 3.

Claim 21 has been analyzed and rejected according to claim 6.

Claim 22 has been analyzed and rejected according to claim 7.

Claim 23 has been analyzed and rejected according to claim 8.

Claim 27 has been analyzed and rejected according to claim 1.

Claim 28 has been analyzed and rejected according to claim 16.

Re Claim 33, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 1, where the audio system comprises a first loudspeaker and a second loudspeaker; and where the correction factor selected is applied to at least on of the first loudspeaker and the second loudspeaker so that a signal for output on the first loudspeaker is different from a signal for output on the second loudspeaker (*Rabinowitz et al, fig. 4: 47-54: the correction factor is different for every loudspeaker position*).

Re Claim 34, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 33, where the first loudspeaker and second loudspeaker, prior to application of the correction factor, receive the same signal (*Rabinowitz et al, fig. 4: 46*).

Re Claim 35, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 34, where the first loudspeaker and second loudspeaker comprise subwoofers (*Rabinowitz et al, para 0021*).

Claim 36 has been analyzed and rejected according to claim 33.

Re Claim 39, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 34, further comprising selecting global correction to be applied to each of the first and second loudspeakers, the global correction providing global equalization of the first and second loudspeakers (*Rabinowitz et al, fig. 4: 56; para 0031: the equalization parameter is compared and adjusted so that no amplitude limits are exceeded*).

Re Claim 43, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 1, but fail to explicitly disclose wherein the audio system comprises a first loudspeaker and a second loudspeaker; wherein the plurality of correction factors comprises a first correction factor and a second correction factor; wherein determining different combinations of potential correction factors comprises: a first combination having the first correction factor applied to the first loudspeaker and the first correction factor applied to the second loudspeaker; a second combination having the first correction factor applied to the first loudspeaker and the second correction factor applied to the second loudspeaker; a third combination having the second correction factor applied to the first loudspeaker and the first correction factor applied to the second loudspeaker; and a fourth combination having the second

correction factor applied to the first loudspeaker and the second correction factor applied to the second loudspeaker, wherein the plurality of listening positions comprises a first listening position and a second listening position; and wherein modifying the transfer functions based on the different combinations of potential correction factors comprises: generating a predicted transfer function at the first listening position for each of the second, third, and fourth combination; and generating a predicted transfer function at the second listening position for each of the second, third, and fourth combination, wherein statistically analyzing across at least one frequency of the predicted transfer functions comprises: a first statistical analysis statistically analyzing at least one criterion for the predicted transfer function at the first listening position for the first combination and the predicted transfer function at the second listening position for the first combination; a second statistical analysis statistically analyzing the at least one criterion for the predicted transfer function at the first listening position for the second combination and the predicted transfer function at the second listening position for the second combination; a third statistical analysis statistically analyzing the at least one criterion for the predicted transfer function at the first listening position for the third combination and the predicted transfer function at the second listening position for the third combination; and a fourth statistical analysis statistically analyzing the at least one criterion for the predicted transfer function at the first listening position for the fourth combination and the predicted transfer function at the second listening position for the fourth combination. However, since Rabinowitz et al discloses calculating different correction factors for different locations and combines them to obtain an optimum sweet

spot (*Rabinowitz et al, fig. 4: 48-56: frequency response is calculated across numerous locations after which the data generated is combined and an equalization pattern is predicted based on this information and used to obtain the sweet spot; (where statistically will be broadly interpreted as collection of data)*), it would have been the designer's preference to create a system that combines specific correction factors for the purpose of obtaining specific transfer functions for a specific listener location.

Claim 44 has been analyzed and rejected according to claims 15 & 43.

Claim 45 has been analyzed and rejected according to claim 43.

Re Claim 46, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 1, where the criterion is selected from the group consisting of flatness, consistency, efficiency, and smoothness (*Tagami et al, figs. 3-4; col. 7, lines 50-67; col. 8, lines 17-53: the equalized audio function is analyzed by utilizing various criterion as disclosed in figs. 3-4*).

Claims 49, 52 & 55 have been analyzed and rejected according to claim 46.

2. Claims 4, 37-38, 47-48, 50-51, 53-54 & 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rabinowitz et al, US Patent Pub. 20030179891 A1and Tagami et al, US Patent 5745586, in further in view of official notice.

Re Claim 4, which further recites, "where the equalization is selected from the group consisting of parametric, graphic, paragraphic, shelving, FIR (finite impulse response), and transversal equalization." Rabinowitz et al and Tagami et al do not explicitly disclose the group consisting of parametric, graphic, paragraphic, shelving, FIR (finite impulse response), and transversal equalization as claimed. Official notice is taken that both the concept and advantages of providing the group consisting of parametric, graphic, paragraphic, shelving, FIR (finite impulse response), and transversal equalization is well known in the art. It would have been obvious to use the group consisting of parametric, graphic, paragraphic, shelving, FIR (finite impulse response), and transversal equalization since they are well known methods used for equalization.

Re Claim 37, the combined teachings of Rabinowitz et al and Tagami et al disclose the audio system of claim 34, but fail to disclose where the same signal comprises a signal output from a decoder. However, official notice is taken that both the concepts and advantages of using a decoder are well known in the art. It would have been obvious for Rabinowitz et al and Tagami et al to use a decoder for the purpose of analyzing the loudspeaker position information and outputting it as surround sound.

Claim 38 has been analyzed and rejected according to claims 35 & 37.

Claim 47, the combined teachings of Rabinowitz et al and Tagami et al disclose the method of claim 1, but fail to disclose "where the statistical analysis comprises variance across the at least two of the plurality of listening positions." Official notice is taken that both the concepts and advantages of the statistical analysis comprising

variance such as spatial variance is well known in the art. It would have been obvious to use a spatial variance of any other kind of variance since it's a variation of standard deviation commonly used for statistical analysis.

Claims 48, 50-51, 53-54 & 56-57 have been analyzed and rejected according to claim 47.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GEORGE C. MONIKANG whose telephone number is (571)270-1190. The examiner can normally be reached on M-F. alt Fri. Off 7:30am-5:00pm (est).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George C Monikang/ 11/16/2009
Examiner, Art Unit 2614

/Vivian Chin/
Supervisory Patent Examiner, Art Unit 2614